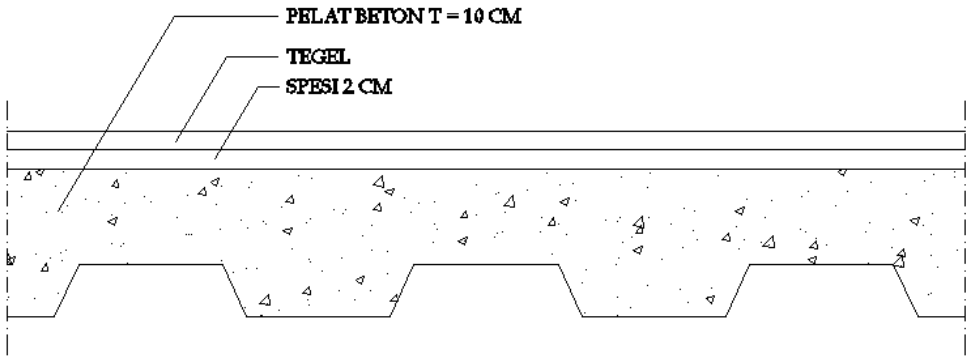
BAB II

PERENCANAAN STEEL DECK

2.1 Pembebanan Steel Deck

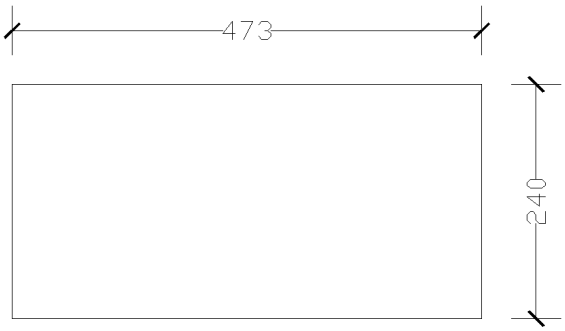


- Beban hidup berdasarkan PPIUG 1983 Tabel 3.1 lantai ruko

  $LL := 250$ kg/m^2

- Berat finishing meliputi berat spesi + tegel (2 cm)

  $Wf := 2 \cdot (21 + 24) = 90$ kg/m^2



Bentang bondek = 2.5 m (tanpa penyangga)

Beban berguna = (250+90) = 340 kg/m^2 diambil 400 kg/m^2

Tebal pelat = 12 cm

Tulangan negatif = 2.06 cm^2/m

- Beban mati
  - Berat sendiri bondek $Wbdk := 10.5$ kg/m^2
  - Berat beton bertulang $Wbb := 0.1 \cdot 2400 = 240$ kg/m^2
  - Berat spesi dan tegel $Wst := 2 \cdot (21 + 24) = 90$ kg/m^2

$DL := Wbdk + Wbb + Wst = 340.5$ kg/m^2

Kombinasi pembebanan (qu)

$qu := 1.2DL + 1.6 \cdot LL = 808.6$ kg/m^2

2.1 Perencanaan Tulangan

Luas tulangan negatif : $Tn := 2.06 \ \ cm2/m$

Digunakan tulangan pelat dengan spesifikasi sebagai berikut :

$\phi := 10 \ \ mm$

$$As := 0.785 \cdot \left(\frac{\phi}{10} \right)^2 = 0.785 \ \ cm2$$

Jumlah tulangan /m:

$$n := \frac{Tn}{As} = 2.6242$$ diambil 7 buah / m (150 mm)

Wiremesh M10-150 Tn = 5,23 cm^2/m ▮ > ▮ Tnperlu = 2,06 cm^2/m OK

Pakai wiremesh M10-150